

Factors affecting employment in Thailand maritime industry^{*}

ปัจจัยที่ส่งผลต่อการจ้างงานในอุตสาหกรรมพาณิชย์นาวีไทย

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Abstract

The purpose of the research was to identify the factors affecting employment in Thailand's maritime industry namely international shipping sector, ports and terminals sector and shipbuilding sector. The factor of educational institutions found that the international shipping sector was most affected by the standard of maritime courses provided. Port and terminal sector and shipbuilding sector found that practical work experience and mandatory work experience as part of study was the most important factors. The entrepreneurs of the three sectors expressed that the high reputation of educational institutions was not an important factor influencing employment.

The factor of the operators found that the international shipping sector was more concerned with the practical ability of graduates to perform in their job roles. The port and terminal sector and shipbuilding sector identified that the work experience was the most important factor. The port and terminal sector conveyed that referrers of graduate job applicants were not an important factor influencing employment meanwhile other languages except English had low important effect on the international shipping and the shipbuilding sectors. The entrepreneurs of the three sectors all concluded that they used a formal interview process to recruit job applicants.

Introduction

In reference to the maritime industry's *Parliament Act 1978* section 4 explains the definition of a maritime which is all trade and marine shipping, insurance, shipping routes and all direct and indirect port terminal and shipbuilding operations. The maritime industry has a great capacity for economic development for a country. Countries that have strong and

* To study the factors of Thailand's educational institutions and operators that influence employment.

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efficient maritime industries are more competitive in the global economy. Thailand in particular has developed into an ASEAN Economic Community (AEC) as of 31 December 2015. Human resources are the core component on the development and function of the maritime industry. The maritime industry has a high workforce demand therefore all the human resources sectors pursue the highest quality candidates by implementing high standards of selection criteria processes (Sunanta Laohanan, 1999: 118-120).

Thailand's educational institutions function has changed in recent times to provide the labor market with graduates whose courses are more closely aligned with their job roles and to provide courses that meet labor market demand. This research attempts to assist Thailand's maritime educational institutions by providing information of the entrepreneurs needs for employment over the three sectors of the maritime industry. The research focuses on three sectors of the maritime industry. Firstly, the shipping entrepreneurs Thai Shipowners Association (ordinary). Secondly, private port and terminal entrepreneurs under the concession of public service over the four areas which include: Laem Chabang, private port and terminal of Chon Buri, Rayong and Chao Phraya river area. Lastly, the shipbuilding entrepreneurs who hold authorized capital of over 15 million baht. The reason the researchers have chosen to focus on these three sectors of Thailand's maritime industry is because they form the major supply chain production and services as well as providing the largest economic input of Thailand's maritime industry being over 60% in total.

Objectives

The objective of the research is to study the factors of Thailand's educational institutions and operators that influence employment over the three sectors of Thailand's maritime industry including the international shipping, port and terminal and shipbuilding entrepreneurs.

Methodology

This research is collected data in terms of quantitative and qualitative data. All data were obtained from executive management or human resource management department selected by purposive sampling and data from questionnaire from samples conducted by probability sampling. This research uses an experimental survey over a period of 8 months beginning from 1 July 2015 and finishing on 28 Feb 2016.

Sample groups: The international shipping entrepreneurs Thai Shipowners Association (ordinary) 46 entrepreneurs received a questionnaire and only 24 were returned which resulted in 52.17% of the original sample size. Private port and terminal entrepreneurs under the concession of public service over the four areas of: Laem Chabang, private port and terminal of Chon Buri, Rayong and Chao Phraya river area. 27 entrepreneurs received the questionnaire and 25 were returned resulting in 92.59% of the original sample size. The shipbuilding entrepreneurs (Member of Thai Shipbuilding and Repairing Association), 11 questionnaires were received by entrepreneurs and all were returned resulting in 100% of the original sample. Probability sampling was applied to the three sectors of entrepreneurs using the stratified random sampling method.

Tools of the research

A questionnaire composed of three parts was used for the research as follows:

Part 1: Information regarding business structure, type, ownership, location and recruitment methods used.

Part 2: The factors that influence the maritime industries employment:

Educational institution factors

1. High reputation educational institutions
2. The standard of maritime courses provided by the educational institution in relation to the business needs.
3. The suitability of the course content provided by the educational institution in relation to the business needs.
4. The provision of mandatory practical work experience.
5. The mandatory provision of English communication.

Operators Factors:

1. Academic performance.
2. Course being aligned with relevant job positions.
3. Mandatory work experience during study course.
4. Relevant work experience in the field of work.
5. Applicants referees.
6. Level of expertise in practical field of work.
7. Proficiency in English language communication.

8. Communication over multiple languages.

The research applied a rating scale of 1 to 5 to provide a detailed index of feedback.

Part 3: Other comments

This section allowed the entrepreneurs to provide additional feedback outside of the questions provided in parts 1 and 2.

Data Analysis

Pearson's correlation coefficient was applied to the average, standard deviation to compare the two factors of education institutions and the operators (graduates). The correlation coefficient was used to compare independent variation and a one-way ANOVA was applied to examine the different variables.

Research Results

International shipping entrepreneurs

There were separated into their different business structures. There were 22 proprietary limited companies making up 91.7% of the total 24 returned questionnaires. There were 2 public limited companies out of the 24 making up 8.3%. The ownership of 21 companies which were owned by Thai citizens equaling 87.5% of the total companies. 3 companies had more than 50% Thai citizen ownership making up 12.5% of the total 24 companies sampled. 21 companies were located in Bangkok and the surrounding areas being 87.5% of the total companies. 11 of the 24 companies had more than 80 employees in each company making up 45.8% of the total. 10 companies had between 21-50 employees making up 41.7% of the total companies. 2 of the companies has less than 20 employees making up 8.3 % of the total companies, while 1 company had between 51-80 employees making up 4.2% of the total sampled international shipping entrepreneurs.

Table 1 Educational institution factors

Educational Institution factors	\bar{X}	SD	Rating scale
High reputation educational institutions	2.17	1.34	Low
The standard of maritime courses provided by the educational institution in relation to the business needs	3.54	0.98	High
The suitability of the course content provided by the educational institution in relation to the business needs	3.21	1.14	Medium
The provision of mandatory practical work experience	3.17	1.20	Medium
The mandatory provision of English communication	3.29	1.27	Medium

Table 2 Operators factors

Operators Factors	\bar{X}	SD	Rating scale
Academic performance	3.21	0.98	Medium
Course being aligned with relevant job positions	4.13	0.85	High
Mandatory work experience during study course	2.92	1.44	Medium
Relevant work experience in the field of work	4.50	0.66	Highest
Applicants referees	3.17	1.37	Medium
Level of expertise in practical field of work	4.58	0.65	Highest
Proficiency in English language communication	4.33	0.92	High
Communication over multiple languages	2.29	1.04	Low

From table 1 and 2, international shipping entrepreneurs point of view shown that the standard of maritime courses provided by the educational institution in relation to the business needs had high influence on employment under educational operator factor. On the other hand, reputation of institution had low impact for employment. For operators' factors, relevant work experience in the field of work, level of expertise in practical field of work had highest important factors affecting employment. Moreover, course being aligned with relevant job position and proficiency in English language communication also had high important factors for selecting employees. However, ability to communicate other language apart from English had low effect on employment.

Port and terminal entrepreneurs

Port and terminal entrepreneurs 21 companies were proprietary limited out of the total 25 making up 84% while 4 companies were public making up 16% of the total sample. 18 companies were fully owned by Thai citizens making up 72% of the total while 5 companies had more than 50% Thai citizen ownership making up 20% of the total sample size. 2 companies had greater than 50% foreign ownership representing 8% of the total sample size. 11 of the 25 companies were located in Laem Chabang representing 44% of the total sampled companies. There are 9 private port terminals in the Rayong areas representing 36% of the total companies. 4 private port terminals were located in Chon Buri representing 16% of the total sample. 1 private port and terminal company was located near the Chao Phraya river area having 4% of the total sample size. 15 of the 25 companies had more than 80 employees representing 60% of the total sample size. 6 companies had between 51-60 employees resulting in 24% of the total sample. 4 companies had between 21-50 employees being 16% of the total sample.

Table 3 Educational institution factors

Educational Institution factors	\bar{X}	SD	Rating scale
High reputation educational institutions	2.72	1.44	Medium
The standard of maritime courses provided by the educational institution in relation to the business needs	3.24	1.20	Medium
The suitability of the course content provided by the educational institution in relation to the business needs	3.32	1.11	Medium
The provision of mandatory practical work experience	4.00	1.12	High
The mandatory provision of English communication	3.80	1.00	High

Table 4 Operators factors

Operators factors	\bar{X}	SD	Rating scale
Academic performance	2.96	0.98	Medium
Course being aligned with relevant job positions	4.24	0.72	High
Mandatory work experience during study course	4.04	1.21	High
Relevant work experience in the field of work	4.24	0.93	High
Applicants referees	1.84	1.35	Lowest
Level of expertise in practical field of work	3.84	1.03	High
Proficiency in English language communication	4.12	1.02	High
Communication over multiple languages	2.08	1.29	Low

From the tables above, port and terminal entrepreneurs' perspective on educational institution factors shown that provision of mandatory practical and mandatory provision of English communication had high effect for employment. For operators factors, most of them were impact on viewpoint of these entrepreneurs; for instance, course being aligned with relevant job positions, mandatory work experience during study course, relevant work experience in the field of work, level of expertise in practical field of work and proficiency in English language communication.

Shipbuilding entrepreneurs

Shipbuilding entrepreneurs had 10 companies that were proprietary limited making up 90.9% while 1 company was a public limited representing 9.1% of the total sample. 10 companies were fully owned by Thai citizens making up 90.9% of the total sample while 1 company had over 50% Thai citizen ownership being 9.1% of the total sample. 8 of the 11 companies were located in Bangkok and surrounding areas making 72.7% of the total sample while 3 companies were located in eastern Thailand representing 27.3% of the total sample. 10 of the 11 companies employed more than 80 people representing 90.9% of the total sample while 1 company employed between 21-50 employees representing 9.1% of the total sample size.

Table 5 Educational institution factors

Educational Institution factors	\bar{x}	SD	Rating scale
High reputation educational institutions	2.27	1.27	Low
The standard of maritime courses provided by the educational institution in relation to the business needs	2.72	1.49	Medium
The suitability of the course content provided by the educational institution in relation to the business needs	2.36	1.50	Low
The provision of mandatory practical work experience	3.72	1.42	High
The mandatory provision of English communication	2.72	0.90	Medium

Table 6 Operators factors

Operators factors	\bar{x}	SD	Rating scale
Academic performance	2.36	1.02	Low
Course being aligned with relevant job positions	4.36	0.92	High
Mandatory work experience during study course	4.18	1.40	High
Relevant work experience in the field of work	4.54	0.52	Highest
Applicants referees	1.81	1.25	Low
Level of expertise in practical field of work	4.09	1.04	High
Proficiency in English language communication	3.72	1.48	High
Communication over multiple languages	1.54	0.82	Low

For shipbuilding entrepreneurs' perspective on educational institution factors, the provision of mandatory practical work experience had high influence on employment. In addition, as can be seen in the table 6, most of operators factors had high effect on employment for shipbuilding entrepreneurs.

The correlation coefficient of the two factors influencing employment

The correlation of the educational institution factor and the operator factor using Pearson's Correlation Coefficient were applied to determine how the entrepreneurs of the three sectors recruit candidates. The correlation coefficient was used to determine the independent variables of the two factors.

By:

$$r = \frac{\sum(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum(x_i - \bar{x})^2 + (y_i - \bar{y})^2}}$$

While:

x_i, y_i is any value of the variable is aligned.

\bar{x}, \bar{y} is the average of the variable.

Independent variables of the educational institution and the operators factors:

Educational institution factors:

EDU1 = High reputation educational institutions

EDU2 = The standard of maritime courses provided by the educational institution in relation to the business needs

EDU3 = The suitability of the course content provided by the educational institution in relation to the business needs

EDU4 = The provision of mandatory practical work experience

EDU5 = The mandatory provision of English communication

Operators Factors:

OPE1 = Academic performance

OPE2 = Course being aligned with relevant job positions

OPE3 = Mandatory work experience during study course

OPE4 = Relevant work experience in the field of work

OPE5 = Applicants referees

OPE6 = Expertise in practical field of work

OPE7 = Proficiency in English language communication

OPE8 = Communication over multiple languages

Table 7 Correlation Coefficient

	<i>EDU₁</i>	<i>EDU₂</i>	<i>EDU₃</i>	<i>EDU₄</i>	<i>EDU₅</i>	<i>OPE₁</i>	<i>OPE₂</i>	<i>OPE₃</i>	<i>OPE₄</i>	<i>OPE₅</i>	<i>OPE₆</i>	<i>OPE₇</i>	<i>OPE₈</i>
<i>EDU₁</i>	1												
<i>EDU₂</i>	0.324	1											
<i>EDU₃</i>	0.296	0.622	1										
<i>EDU₄</i>	0.298	0.060	0.157	1									
<i>EDU₅</i>	0.255	0.217	0.326	0.035	1								
<i>OPE₁</i>	-0.008	0.233	0.175	-0.188	0.438	1							
<i>OPE₂</i>	-0.151	-0.017	0.023	0.006	-0.015	0.242	1						
<i>OPE₃</i>	0.372	-0.042	0.140	0.921	-0.017	-0.234	-0.044	1					
<i>OPE₄</i>	-0.062	-0.101	-0.116	0.018	0.081	0.004	0.298	0.096	1				
<i>OPE₅</i>	-0.083	-0.006	0.088	-0.237	0.061	0.205	-0.025	-0.292	0.033	1			
<i>OPE₆</i>	-0.111	0.109	0.064	-0.049	0.090	0.283	0.226	-0.097	0.321	0.085	1		
<i>OPE₇</i>	0.085	0.187	0.277	-0.307	0.616	0.207	-0.073	-0.315	0.222	0.192	0.121	1	
<i>OPE₈</i>	0.327	0.337	0.462	0.202	0.310	0.241	-0.226	0.251	-0.099	0.043	0.160	0.311	1

The research shows that the three sectors of entrepreneurs found the educational institution factor provision of mandatory practical work experience (EDU4) and the operator factor of mandatory work experience during the study course (OPE3) to be the two most important factors influencing the recruitment of employees by have a correlation coefficient of $R = 0.921$. The second most important correlation that was considered by the entrepreneurs of the three sectors was the alignment of two educational institution factors. The standard of the maritime courses (EDU2) and the suitability of the course content provided by the educational institution in relation to the business needs (EDU3) was found to have a correlation coefficient of $R = 0.622$. The entrepreneurs of the three sectors considered the provision of English communication (EDU5) and the proficiency in English language communication (OPE7) to have the third most important correlation with a correlation coefficient of $R = 0.616$.

Tendency of factors influencing employment in Thailand's maritime industry

The study used a one-way ANOVA to examine the differences between the average of the factors that influence employment of the three sectors of Thailand's maritime industry. The confidence level applied was 95% and the acceptable error applied was 5%.

The main hypothesis

$$H_0 : \mu_1 = \mu_2 = \mu_3$$

Factors of the three sectors of the entrepreneurs followed the same trend.

The supporting hypothesis

$$H_1 : \mu_1 \neq \mu_2 \neq \mu_3, \mu_1 \neq \mu_2, \mu_1 \neq \mu_3, \mu_2 \neq \mu_3$$

The least one pair of the independent variable not followed the same trend.

Table 8 Result of analysis: One-Way ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
EDU ₁	3.749	2	1.875	0.998	0.375	3.159
EDU ₂	3.173	2	1.586	1.231	0.300	3.159
EDU ₃	4.808	2	2.404	1.754	0.182	3.159
EDU ₄	10.000	2	5.000	3.504	0.037	3.159
EDU ₅	11.870	2	5.935	5.051	0.010	3.159
OPE ₁	5.386	2	2.693	2.768	0.071	3.159
OPE ₂	0.453	2	0.226	0.342	0.712	3.159
OPE ₃	19.754	2	9.877	5.496	0.007	3.159
OPE ₄	1.113	2	0.556	0.953	0.392	3.159
OPE ₅	25.604	2	12.802	7.131	0.002	3.159
OPE ₆	6.359	2	3.180	4.084	0.022	3.159
OPE ₇	2.778	2	1.389	1.197	0.310	3.159
OPE ₈	4.258	2	2.129	1.725	0.187	3.159

From the table when considering F value of factors: The provision of mandatory practical work experience (EDU4), The mandatory provision of English communication (EDU5), Mandatory work experience during study course (OPE3), Applicants referees (OPE5), Level of expertise in practical field of work (OPE6). The researchers found that the F values to equal 3.504, 5.051, 5.496, 7.131, 4.084. F crit value =3.159, so F is more than F crit and therefore the main hypothesis is rejected. The three sectors of entrepreneurs considered the factors of (EDU4), (EDU5), (OPE3), (OPE5), (OPE6) have shown a difference with the level of significant at 95. When using the ANOVA the three sectors of entrepreneurs considered the difference of operators factor with 5 independent variables of The provision of mandatory practical work experience (EDU4), The mandatory provision of English communication (EDU5), Mandatory work experience during study course (OPE3), Applicants referees (OPE5), Expertise in practical field of work. (OPE6).

Conclusion

This research aimed to study the factors that influence employment over the three sectors of entrepreneurs of the maritime industry of Thailand. The sectors of entrepreneurs are the international shipping, port and terminal, and the shipbuilding entrepreneurs. By focusing on the educational institutions and the graduates operators factors the research could conduct

a data analysis applying mathematical statistics to determine the factors affecting employment.

The factors affected employment of three sectors entrepreneurs was similar. It found that the provision of mandatory work experience under the educational institutions factor, and also that graduates had relevant work experience in the field of work under the operator factor had influence for port terminal and shipbuilding entrepreneurs. According to research by Jonglak, H (2014), the study of the Human Capital of Logistics Worker: Empirical Study of the Merchant Marine Company found that the factor affecting boatman's income was the number of years of work experience, 11.2 percent, which corresponds to this study in the group of Port and terminal entrepreneurs and Port and terminal entrepreneurs. The important factor affecting employment is the provision of mandatory practical work experience (EDU 4) and the relevant work experience in the field of work (OPE4). However, it was difference with international shipping sectors. The standard of maritime course provided under the educational institution factor, and the level of expertise in the practical field of work under the operator factor had the most affecting factors for employment. The results also shown that most of factors in operators factors had influence for employment of those three entrepreneurs, excepting applicants referees and communication over multiple languages factors was low impact for employment.

The research also reveals that both the high reputation of educational institutions and the level of academic performance were found to be less important than relevant work experience in the field of work and the mandatory work experience in Thailand's maritime industry. Which corresponds to the research of Grigorut, C., Nistor, F., and Popa, C. (2014) conducted a study of Factors Affecting Labor Demand in Shipping found that ship owners and charterers constraint, crewing agencies are forced to take to account the Specialization of crew in selection and employment process.

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